

### **REMARKS**

The above amendments and the following remarks are fully and completely responsive to the Office Action dated October 4, 2004.

Claims 1-10 are pending. Claims 1-10 are rejected. Claims 1, 6, and 9 have been amended. Claims 1-10 are presented for reconsideration. No new matter is added. All claims are fully supported by at least the specification.

#### **Rejection under 35 U.S.C. § 112, Second Paragraph**

Claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, which Applicants regard as the invention.

Applicants believe that this rejection is obviated with amended claims 1, 6 and 9. Accordingly, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, of claims 1-10.

#### **Rejection under 35 U.S.C. § 102(b)**

Claims 1-4, 9 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated over U.S. Patent No. 5,606,882 to Klug et al. ("Klug '882") or U.S. Patent No. 5,648,016 to Klug et al. ("Klug '016") or U.S. Patent No. 5,779,931 to Klug et al. ("Klug '931").

Applicants respectfully traverse the rejection.

The formulas of the 19 fluoroethers disclosed by Klug '931 are listed starting from column 3, line 14 (n. 1, hexafluorodimethyl ether  $\text{CF}_3\text{OCF}_3$ ) to column 4, line 13 (n. 19, 1-difluoromethoxy-2,2,2-trifluoroethane  $\text{CHF}_2\text{OCH}_2\text{CF}_3$ ). In columns 4 and 5, the CAS registry number and synthesis of each of the 19 fluoroethers are given.

Applicants note that Klug '931 does not disclose the fluoroether used in the composition of claim 1 of the present application, i.e. the compound difluoromethoxy (difluoromethyl ether)  $\text{HCF}_2\text{-OCF}_2\text{OCF}_2\text{H}$ , which has the CAS registry number 78552-47.1.

Applicants further note that columns 4 and 5 of Klug '931 do not list this CAS registry number of the composition of the present application. Neither of the remaining Klug references disclose the composition of the present application. See enclosure 1 for said CAS Registry No.

Applicants also submit that the HFCs are described at column 5, lines 40-63. For example, the compound 1, 1, 1, 4, 4 hexafluorobutane is mentioned at column 5, line 62. However, the compound 1,1,1,3,3 pentafluorobutane is not mentioned in Klug '931 or the other Klug references.

Therefore, Applicants submit that the process of claim 1 of the presently claimed invention and the polyurethane polymer foaming compositions of claim 9 are novel over the Klug references since the references do not disclose the fluoroether compound difluoromethoxy (difluoro methyl ether). Therefore, the

compositions of said compound 1,1, 1, 4, 4, 4 hexafluorobutane and 1, 1, 1, 3, 3 pentafluorobutane are novel over the Klug references.

Applicants respectfully request withdrawal and reconsideration of the anticipation rejection.

**Rejections under 35 U.S.C. §103(a)**

Claims 5-7 are rejected under 35 U.S.C. § 103(a) as being rendered obvious over Klug '882 or Klug '016 or Klug '931 in view of U.S. Patent No. 5,304,320 to Barthelemy et al. ("Barthelemy"). This rejection is traversed.

The technical problem of the present invention was to find azeotropic compositions that could be used as CFC 11 substitutes in the foaming field. See page 2, lines 1-3 of the specification.

Referring to pages 33 and 34 of the specification and Table 14, the use of azeotropic compositions, as CFC substitutes implies that the foams are formed in the same conditions of CFC 11 foams. Additionally these foams show homogeneity and cellularity characteristics with densities similar to the reference products. Moreover, densities as low as  $30 \text{ kg/m}^3$  would be obtained if the molar amounts of the blowing agent in the tested compositions is similar to, or the same as that used in the CFC 11 composition.

Applicants have surprisingly found compositions that solve this technical problem. Compositions of the presently claimed invention can be used to replace CFC 11 foams.

The presently claimed invention provides a substitute for CFC 11 without requiring modifications of the conditions used in conjunction with CFC 11. In other words, the compositions of the present invention can be foamed in the same conditions used for CFC 11. The foams obtained through the process of the presently claimed invention have the same or almost the same physical properties of the foams obtained from CFC 11.

Applicants have demonstrated the non-obviousness of the present invention through the experimental data provided in the Declaration of Dr. Basile of November 10, 2000 (see that Applicant's Response of December 5, 2000). The experiments were carried out by preparing a foam in the same conditions used to obtain foams from CFC 11, and using the same molar quantity of expanding agent as in the CFC 11 compositions.

The Declaration stated that on the basis of the list of azeotropic compositions disclosed in Klug (in the Declaration reference was specifically made to USP '882), one skilled in the art would merely draw compositions that were not fit for use as the substitutes of CFC 11. Since the following was found using the compositions of said list:

- Compositions that did not foam. See examples 6-7 in Tables 1 of the Declaration.

Example 6 corresponds to the composition on row 10, Table 1 in column 10 of Klug '882 and example 7 corresponds to the composition on column 10, row 3 of Table 1 of Klug '882. Table 2 (page 7) of the Declaration reports the experimental results, which illustrate that said compositions of Klug did not foam in the same conditions used for CFC 11.

- Compositions producing fully expanded foams that do not show comparable physical characteristics with those obtained from CFC 11. See examples 1-2 in table 2 on page 7 of the Declaration.

Said compositions correspond to the composition at row 21 (column 10) of Table 1 of Klug '882 and to the compositions at row 34 of column 1 continued on column 12.

Referring to Table 2 of the Declaration, Applicants submit that the compositions of Examples 1 and 2 produce fully expanded foams that are not homogeneous and have a higher density than the composition obtained via CFC 11.

- Compositions producing foams that are not fully expanded. See examples 3, 4 and 5 corresponding, respectively, to the composition at row 40 of Table 1 in column 10 of Klug '882, to the composition at row 2 of Table 1

continued in column 11 of Klug '882, and to the composition at row 61 of Table 1 continued in column 11 of Klug '882.

Table 2 of the Declaration shows that said foams have a very high density. In fact, said foams do not possess a foam density comparable to the foams obtained from CFC 11.

Applicants submit that obviousness requires that the prior art must clearly disclose the problem to be solved and a corresponding solution that is comparable to the same of the present claimed invention. However, as submitted above, Applicants have shown by the examples in the Declaration, there is no motivation to make a process similar to the one presently claimed, and accordingly, the Klug references do not address to compositions suitable for said purpose. Applicants further submit that the compositions of the presently claimed invention are unrelated in anyway to those compositions disclosed in the Klug references. Accordingly, one skilled in the art would not have been able to use the teachings of suggestions of the Klug references to solve the technical problem addressed by the present invention.

Barthelemy does not make up for the deficiencies of the Klug references.

Applicants have shown that none of the Klug references in combination with Barthelemy teaches or suggest each of the limitations of the presently claimed invention. Accordingly, Applicants request withdrawal and reconsideration of the obviousness rejection of claims 5-7.

Application Serial No.: 10/790,687  
Inventor(s): MUSSO et al.  
Attorney Docket No.: 108910-00123

### **Conclusion**


In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of claims 1-10 and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 108910-00123.**

Respectfully submitted,

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Enclosure:1

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Enclosure 1

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 78522-47-1 REGISTRY  
CN Methane, bis(difluoromethoxy)difluoro (9CI) (CA INDEX NAME)  
PS 1D CONCORD  
MF C3 H2 F6 O2  
LC STN Files: CA, CAPLUS, TOXCENTER, USPAT2, USPATFULL  
DT.CA Caplus document type: Journal; Patent  
RL.P Roles from patents: PRP (Properties); USES (Uses)  
RL.NP Roles from non-patents: FORM (Formation, nonpreparative); OCCU  
(Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT  
(Reactant or reagent)

F2CH-O-CF2-O-CHF2

\*\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*\*

14 REFERENCES IN FILE CA (1907 TO DATE)  
14 REFERENCES IN FILE CAPLUS (1907 TO DATE)